

# Randomization as an Incentive Device

## Evidence from Public Procurement of Immigrant Integration Services

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# Two seemingly separate challenges

How to design efficient contracts in public procurement?

- governments routinely buy services and infrastructure from private providers
  - 13% of GDP in OECD countries, 19% in Finland, in 2021
- challenge: quality typically unverifiable, sometimes unobservable
  - ! contracts incentivize cost minimization at the expense of service quality

How to identify causal relationships?

- challenge: constructing plausible counterfactual often difficult

Our argument: **these are essentially the same challenges**

- quality = the effect of a service on something the government cares about
  - ! both can be solved with randomized research designs

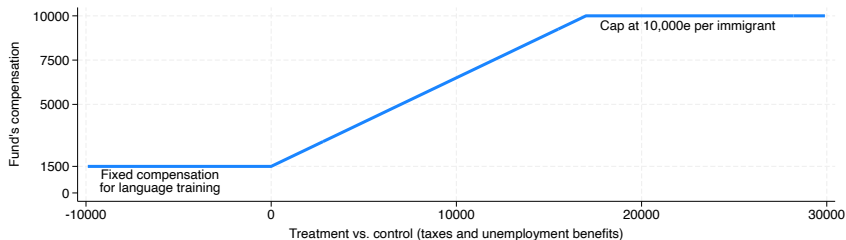
# This paper

We study a new service (“Integration SIB”) for immigrant job seekers

- job-specific language training and job placements contracted to a private provider
- private provider covers upfront costs of the program, compensated based on performance

Innovation: **contracted performance based on a randomized research design**

- target: cumulative unemployment benefits and income taxes over a 3-year follow-up
- randomized assignment to the private provider ( $N = 3,662$ )
- performance measured relative to the control group (Public Employment Services, PES)



# Preview of Findings

The private fund outperformed the public employment services

- earnings 4,500 euros or 15% higher in the 3-year follow-up period
- work in jobs with higher expected earnings and skill requirements
- net costs to public finances decreased by 2700 euros or 12%

Positive effects extend on non-contracted outcomes

- positive earnings effects persist after the three-year follow-up
- reductions in transfers from other government welfare programs

Effects larger for college educated immigrants

- PES provides more limited job search assistance to high-skilled immigrants

# Contribution 1: Public procurement

## Earlier work

- unverifiable service quality limits the benefits of outsourcing (Hart, Shleifer, Vishny 1997), imperfect measures may create harmful multitasking (Holmström and Millgrom 1991), benchmarking ([add key references])
- empirical results vary widely by context (Andersson et al. 2019; Fabre and Straub 2023); outsourcing active labor market policies (ALMP) has little effect (Benmarker et al. 2013, Krug and Stephan 2013, Behaghel et al. 2014, Rehwald et al. 2017, Crépon 2018)

## Our contribution

- **first to study incorporating randomization into a contract** (extending verifiability)
- use non-contracted outcomes to examine unintended consequences (multitasking)
- first to show that outsourcing can improve quality in ALPM

# Contribution 2: Immigrant integration programs

## Earlier work

- **integration programs help immigrants** (Åslund and Johansson 2011, Joonas and Nekby 2012; Sarvimäki and Hämäläinen 2016, Foged et al., 2024; Arendt 2022; Bratu et al. 2023, Humlum et al., 2023, Dahlberg et al. 2024) **and their children** (Foged et al., 2023, Pesola and Sarvimäki, 2024)
- all studied interventions focused on newly arrived immigrants, largely refugees

## Our contribution

- first evidence on an intervention focused on high-skilled immigrants with longer residency
- exceptionally clean identification and large number of participants

# Outline

1. Treatment
2. Empirical Approach
3. Results
4. Mechanisms
5. Conclusions

# Selection into the Integration SIB Program

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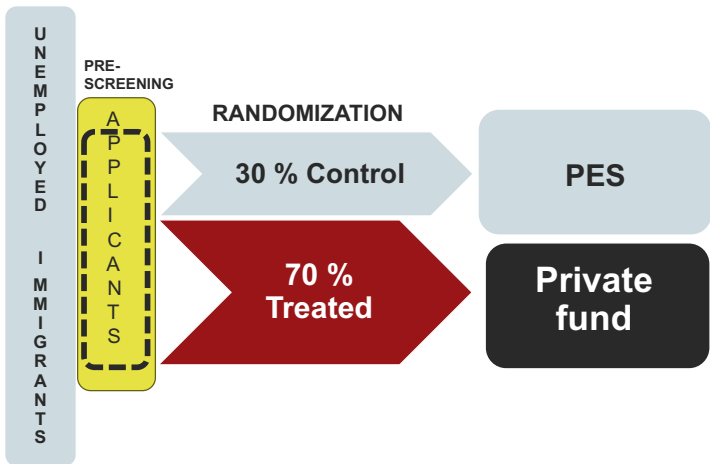
PRE-  
SCREENING



- 1. Immigrants can apply to Integration SIB online via service provider's website** (most likely learn about program from PES caseworkers)
- 2. Service provider briefly interviews candidates**



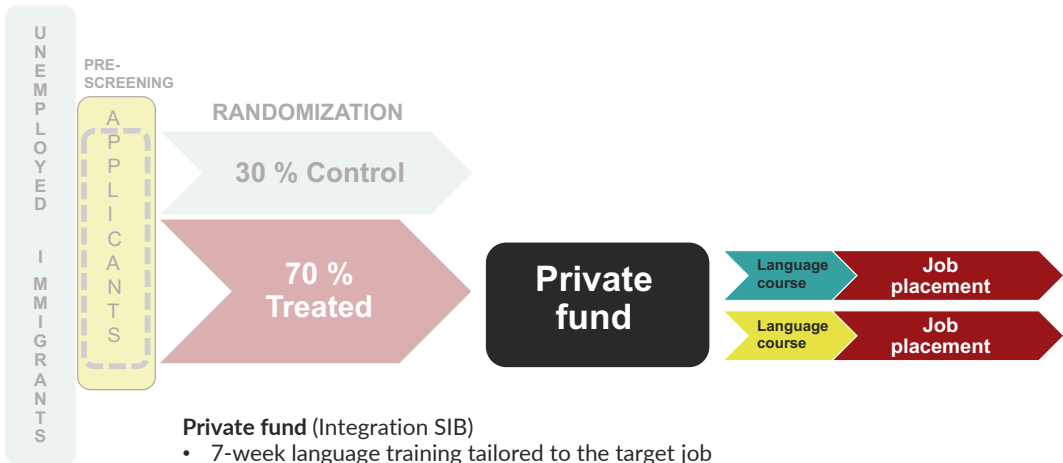
# Selection into the Integration SIB Program



3. Service provider sends list of applicants to PES who checks eligibility (unemployed immigrants aged 17-63 who can read and write)

4. PES randomizes 70% to treatment, 30 % to control (randomization weekly by regional PES office)

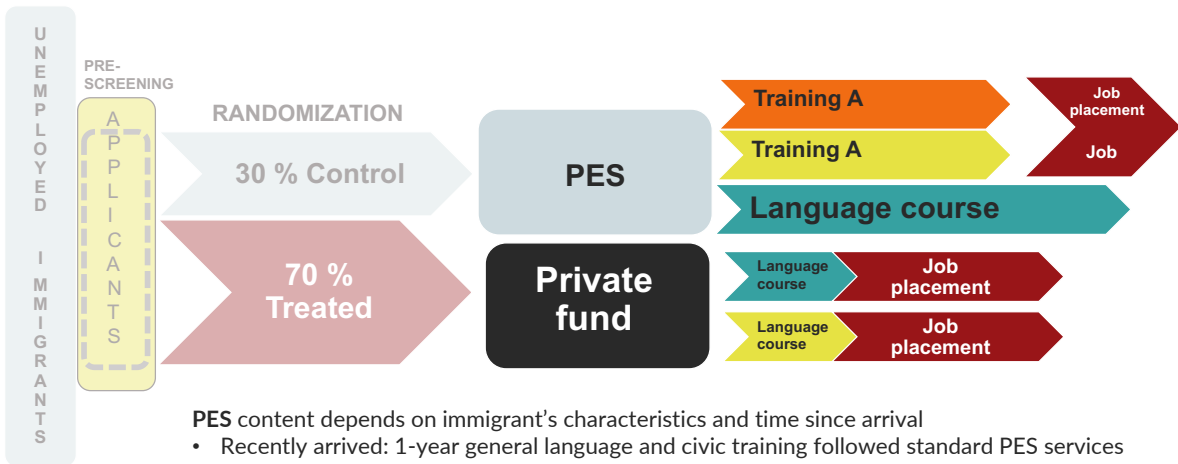
# Integration SIB vs Business-as-usual model



## Private fund (Integration SIB)

- 7-week language training tailored to the target job
- Tailored courses for college-educated immigrants
- Placement to real jobs in industries with labor shortages and low language requirements (logistics and warehousing; hotels, restaurants, catering; building and construction; cleaning, recycling; manufacturing)

# Integration SIB vs Business-as-usual model

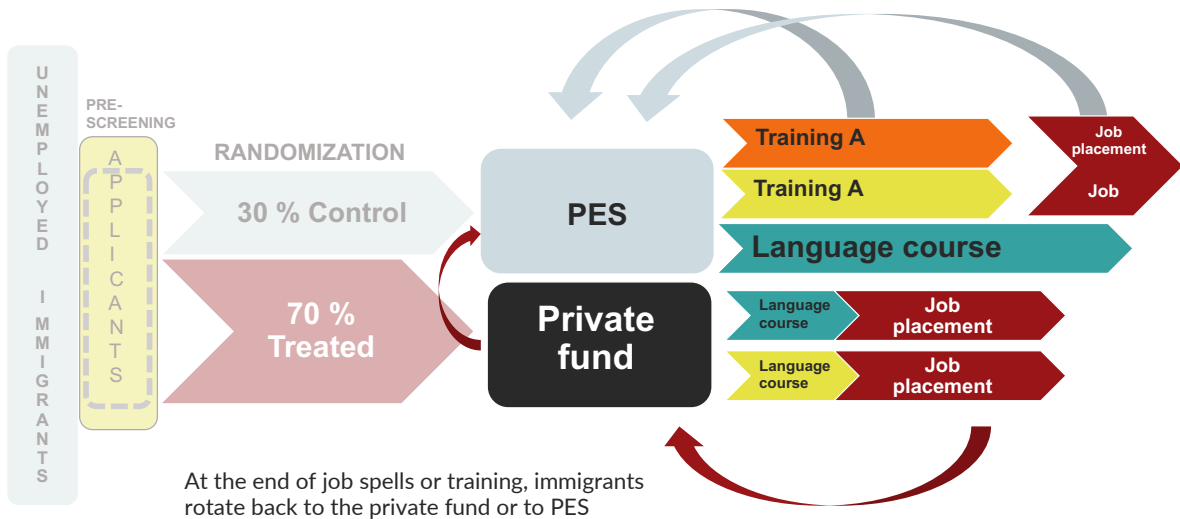


**PES** content depends on immigrant's characteristics and time since arrival

- Recently arrived: 1-year general language and civic training followed standard PES services
  - additional courses, vocational education, regular job-search, subsidized job placements...
- Others: standard PES services

Training procured from private providers that are paid by person-days

# Integration SIB vs Business-as-usual model



At the end of job spells or training, immigrants rotate back to the private fund or to PES

**Compensation** based on treatment vs. control during the **three years following randomization**

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# Data

We link individuals who applied to Integration-SIB between 2017-2019 ( $N = 3,662$ ) to

## Income data

- annual labor earnings, unemployment and other social benefits
- monthly earnings 2019-

## Employment

- job contracts

## Public Employment Service data

- ALMPs, including language training and integration training days

## Education

- general secondary or higher education

# Empirical approach

Identification: randomized design Balance Table

Estimation

$$Y_{it} = \alpha + \beta_t \text{Treated}_i + \theta_{j(i)} + X_i \gamma + \varepsilon_{it} \quad (1)$$

where

- $Y_{it}$  is the outcome of interest observed at time  $t$
- $\theta_{j(i)}$  is a fixed-effect for randomization event
- $X_i$ : age, gender and an indicator for having an integration plan (unnecessary for identification, but increases precision)

Pre-analysis plan (AEARCTR-0012519)

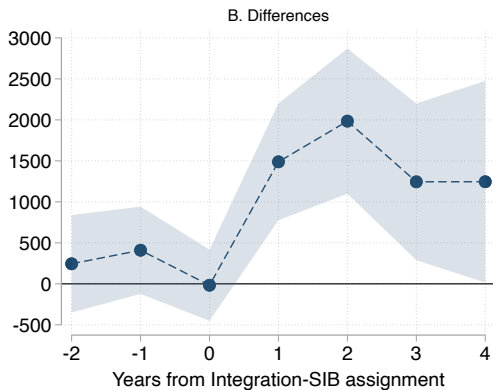
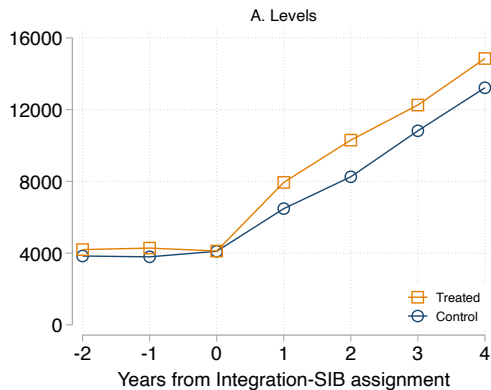
- primary outcome: annual labor earnings  
short-run: years 1–3, medium-run: years 4–5, winsorized at the 99th percentile
- secondary outcomes: employment, taxes, benefits, ALPM training, language skills, enrollment in formal education, degrees
- heterogeneity: time since arrival (more vs less than three years)

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# Main result: Effect on earnings



Pre-registered primary outcome: **cumulative earnings increased 4,549 euros (SE: 1,177) or 15 percent** during the first three years after randomization.

employment

## Treatment effect heterogeneity and job quality

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	Annual earnings
<i>A: Average Treatment Effects</i>	
Treated	1,548*** (385)
<i>B: Treatment Effects by Job Seeker's Skill</i>	
Treated	729* (412)
Treated College degree	2,608*** (917)
Control mean	9,732
Non-college	8,812
College	12,088
Observations	10,667

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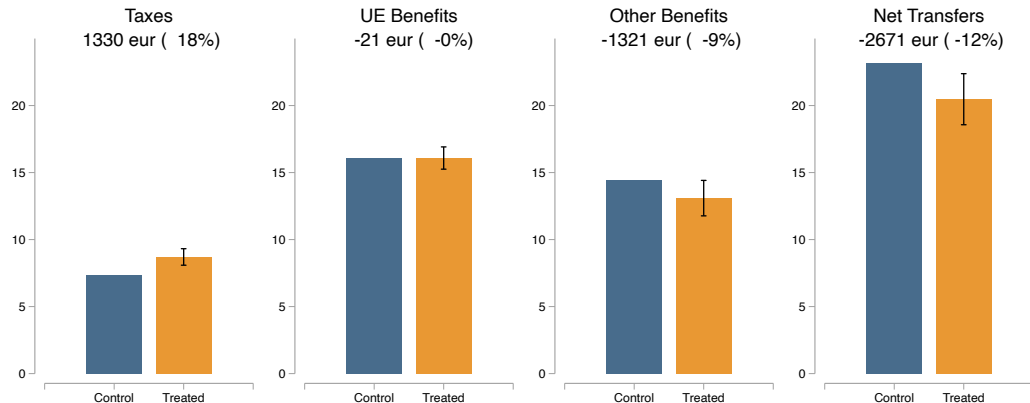
## Treatment effect heterogeneity and job quality

	Annual earnings	Occupation quality		Firm quality	
		Expected earnings	Share with college deg.	Co-worker av. earnings	log(Sales per worker)
<i>A: Average Treatment Effects</i>					
Treated	1,548*** (385)	1,229** (423)	0.028** (0.009)	1,511*** (580)	0.088** (0.038)
<i>B: Treatment Effects by Job Seeker's Skill</i>					
Treated	729* (412)				
Treated College degree	2,608*** (917)				
Control mean	9,732	29,304	0.159	22,506	11.3
Non-college	8,812				
College	12,088				
Observations	10,667	4,071	4,071	6,409	5,256

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<i>B: Treatment Effects by Job Seeker's Skill</i>					
Treated	729* (412)	150 (380)	0.005 (0.008)	69 (637)	0.057 (0.047)
Treated College degree	2,608*** (917)	2,726** (1,264)	0.054* (0.030)	4,857*** (1,430)	0.120 (0.089)
Control mean	9,732	29,304	0.159	22,506	11.3
Non-college	8,812	27,084	0.098	20,220	11.3
College	12,088	34,742	0.308	28,314	11.4
Observations	10,667	4,071	4,071	6,409	5,256

## Effect on Taxes and Transfers



On average, the treatment group created a **2,671 euros** or **12 percent** lower cumulative net burden on public finances over the three-year follow-up period than the control group. The short-term gain for the government was €6,8m.

# More Results

## More treatment effect heterogeneity

- effects on earnings larger for high-skilled and younger participants; no differences by gender or time since immigration [link](#)

## The effects extend also to non-contracted outcomes

- improvement in non-contracted benefits (previous slide) and earnings after the 3yr follow-up [link](#)
- ! no evidence on multitasking (at least along these dimensions)

## No evidence on effects being driven by displacement

- effects sizes similar in labor markets with more vs less participants [link](#)

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# What did the private fund do differently?

## Qualitative evidence on services offered by the private fund

- Document analysis + 35 in-depth interviews  
(PES employees, training providers, investors, fund personnel, government officials)
- take-away: the private fund invested heavily on match-making between immigrants and employers

## Counterfactual services offered by the PES

- in-class language and general training, subsidized employment or education [link](#)
- job search assistance via vacancy referrals
  - high-skilled immigrants get less assistance [link](#) and to jobs for which they are overqualified [link](#)

## Interpretation

- private fund had stronger incentives to help and seems to have been more effective in helping high-skilled immigrants that receive less jobs search support from PES



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# Conclusions

Our big idea: **unverifiability is essentially an identification problem**

- unverifiable quality prevents making efficient outsourcing contracts
- quality = the effect of a service on something one cares about

! Randomization protocols can extend the scope of efficient contracts

The Integration SIB experiment is apparently the first attempt to implement this idea

- proof of concept: such contracts can actually be written (and legally approved)
- promising results: 15% increase in participants' earnings, 12% reduction in net transfers
- similar approaches likely feasible also in other contexts

Such contracts can also create information externalities

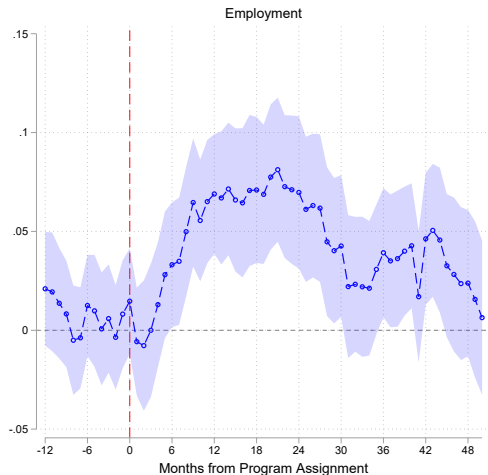
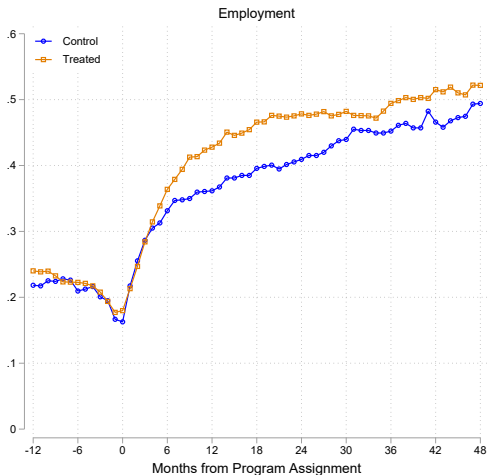
- allows governments and other service providers to learn what works and for whom
- here: investing in match-making and highly educated immigrants can have large returns

# Appendix

## Descriptives: test for balance prior to program assignment [back](#)

	Control (1)	Treated (2)	$\beta^{SIB}$ (3)	SE (4)
Assignment Year	2018.3	2018.3	-0.00	(0.00)
Age	38.50	38.85	0.43	(0.35)
Woman	0.41	0.42	0.00	(0.02)
Married	0.56	0.59	0.02	(0.02)
Single	0.25	0.22	-0.03**	(0.01)
Divorced	0.17	0.18	0.01	(0.01)
Years in Country	6.87	6.84	0.08	(0.19)
Days Unemployed	214	232	18*	(11)
Earnings (t-1)	3792	4279	446	(297)
Social Benefits (t-1)	10394	9990	-274	(293)
Unemployment Benefits (t-1)	5749	5639	-46	(166)
Net Transfers (t-1)	-8759	-8286	346	(300)
Work Days (t-1)	74.82	82.54	7.43*	(4.49)
Enrolled in Education Program (t-1)	0.18	0.17	-0.01	(0.01)
Enrolled in Secondary Program (t-1)	0.15	0.14	-0.01	(0.01)
N	1026	2636		

# Employment [back](#)



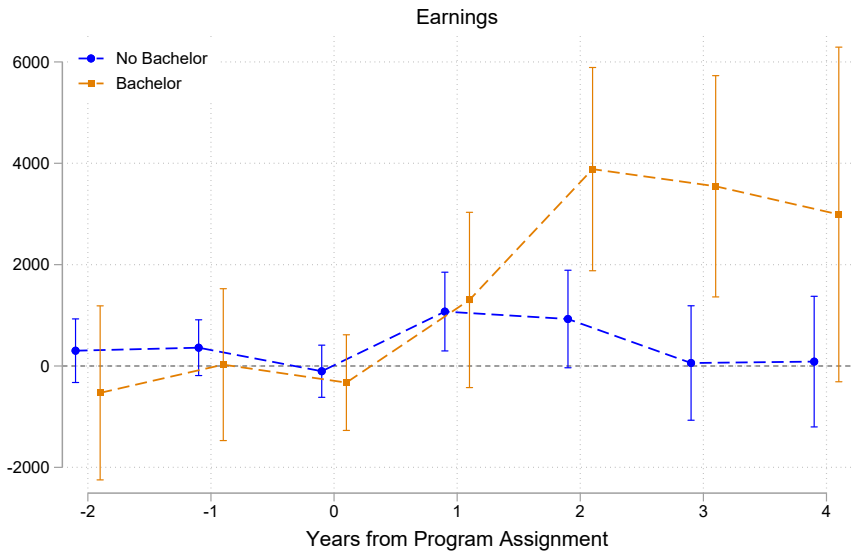
# Heterogeneity in Earnings Effects [back](#)

	(1)	(2)	(3)	(4)
<b>Panel A: Earnings</b>				
Treated	4367*** (1405)	5036*** (1541)	4694*** (1168)	2243* (1239)
Treated X Recent	1173 (3246)			
Treated X Woman		-772 (2386)		
Treated X Age			-226* (136)	
Treated X High Edu				7893*** (2709)
Mean	28936	29181	29181	29177
N	3426	3645	3645	3550
Cluster FE	×	×	×	×

## Heterogeneity in Employment Effects [back](#)

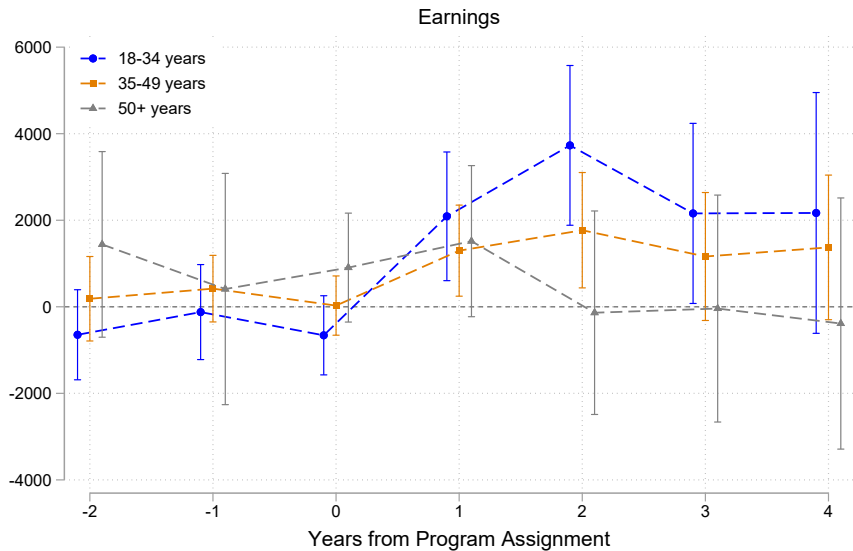
	(1)	(2)	(3)	(4)
<b>Panel B: Employment (days)</b>				
Treated	56*** (15)	52*** (17)	57*** (12)	48*** (13)
Treated X Recent	-7 (31)			
Treated X Woman		13 (27)		
Treated X Age			-2 (1)	
Treated X High Edu				21 (27)
Mean	386	393	393	391
N	3426	3645	3645	3550
Cluster FE	×	×	×	×

# High-Skilled Participants Have the Highest Returns [back](#)

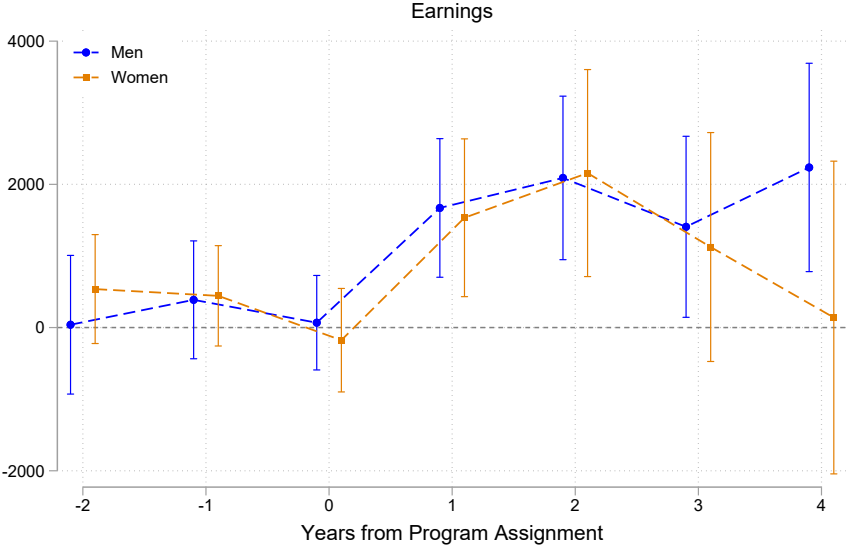




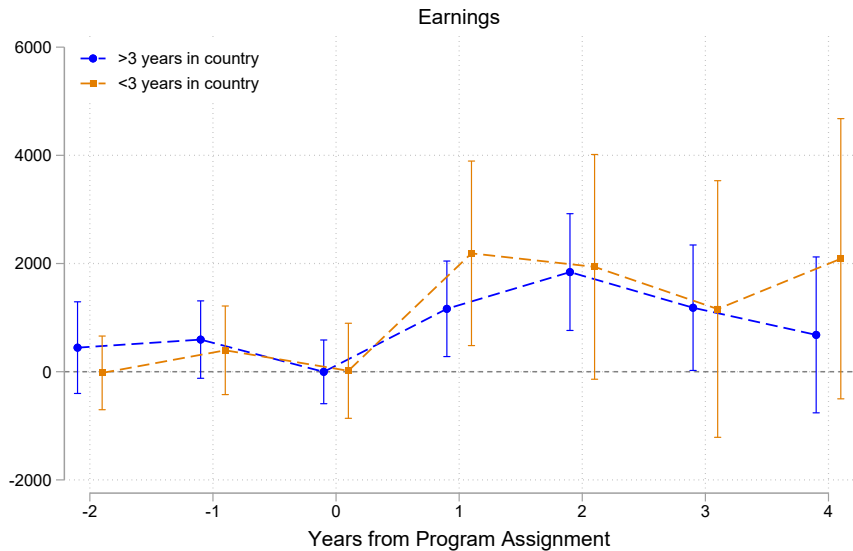
# Returns Decrease with Age [back](#)



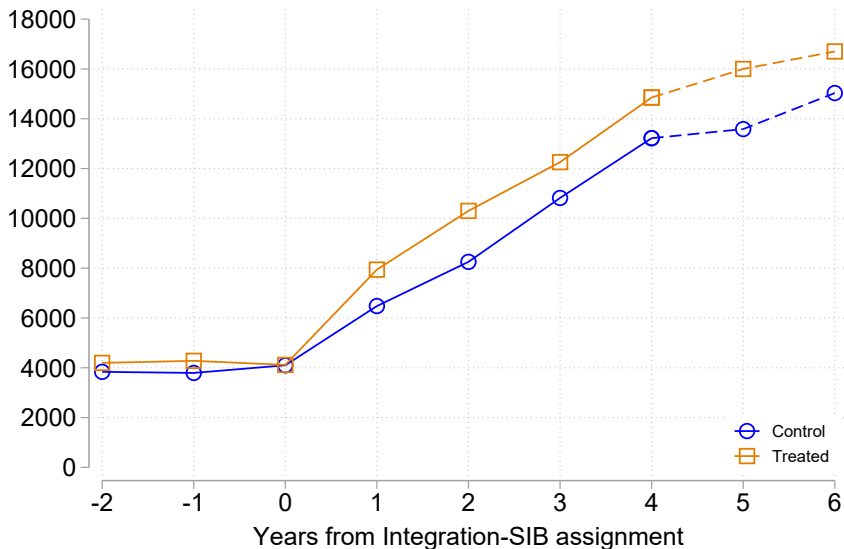
# Gender Does not Predict Earnings Effects [back](#)



# Time in Country Does not Predict Earnings Effects [back](#)



## No sign of reversal in earnings over time [back](#)



## Displacement Effects [back](#)

ALMPs could plausibly have displacement effects that affect results interpretation  
Limited scale (3,600+ participants), unlikely to be only displacements effects  
To evaluate, we leverage variation in program roll-out across labor markets

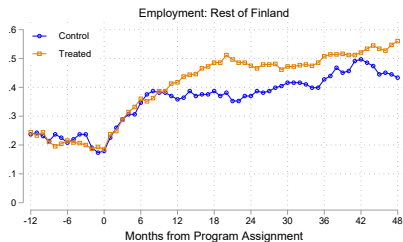
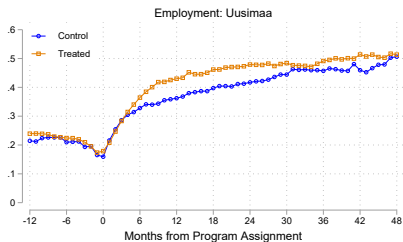
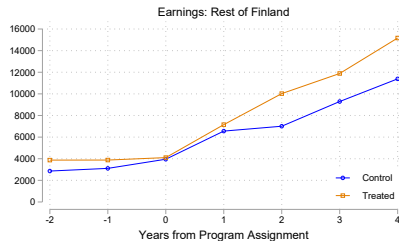
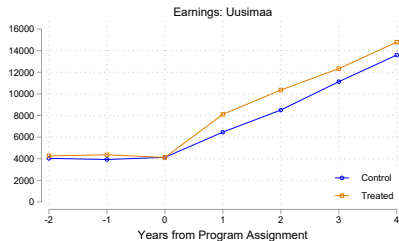
$$Y_{it} = \gamma_0 + \gamma_1 \text{Treated}_i \text{Intensity}_{k(i)} + \gamma_2 \text{Treated}_i \theta_{j(i)} + X_i \gamma + \varepsilon_{it} \quad (2)$$

where  $\text{Intensity}_{k(i)}$  is the share of LF in region  $k$  participating in the program  
 $\gamma_1 > 0$  would be consistent with displacement effects, assuming intensity is uncorrelated with other factors that affect the effectiveness of program

## Roll-out by Labor Markets [back](#)

Region	(1) Labor Force	(2) Immigrants	(3) Immigrant Share	(4) Participants	(5) Participants per 1000	(6) Participants per 1000 Immigrants
Uusimaa	843571	64704	0.08	3034	3.597	46.890
Varsinais-Suomi	227000	9362	0.04	253	1.115	27.024
Pohjois-Karjala	74397	1606	0.02	73	0.981	45.455
Pirkanmaa	245371	7058	0.03	187	0.762	26.495
Pohjois-Pohjanmaa	186439	3388	0.02	64	0.343	18.890
Pohjanmaa	115360	4969	0.04	23	0.199	4.629
Kaakkois-Suomi	136679	5509	0.04	17	0.124	3.086
Keski-Suomi	126637	2525	0.02	11	0.087	4.356
Satakunta	101175	2677	0.03	0	0.000	0.000
Häme	178050	5365	0.03	0	0.000	0.000
Etelä-Savo	61888	1293	0.02	0	0.000	0.000
Pohjois-Savo	114775	2379	0.02	0	0.000	0.000
Etelä-Pohjanmaa	89165	1770	0.02	0	0.000	0.000
Kainuu	33192	595	0.02	0	0.000	0.000
Lappi	82528	1698	0.02	0	0.000	0.000
Ahvenanmaa	15094	1711	0.11	0	0.000	0.000

# Lack of Displacement: Weakly Decreasing in Treatment Intensity back

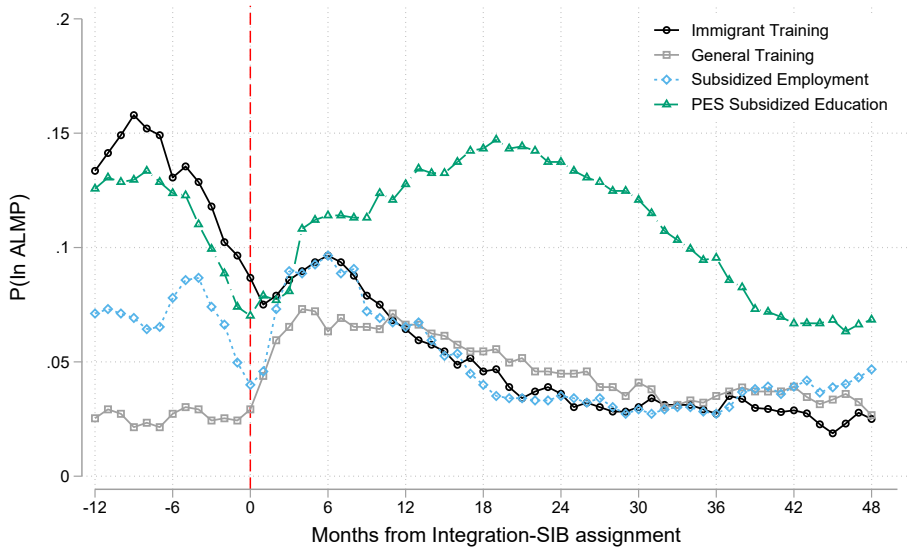


# Lack of Displacement: Weakly Decreasing in Treatment Intensity back

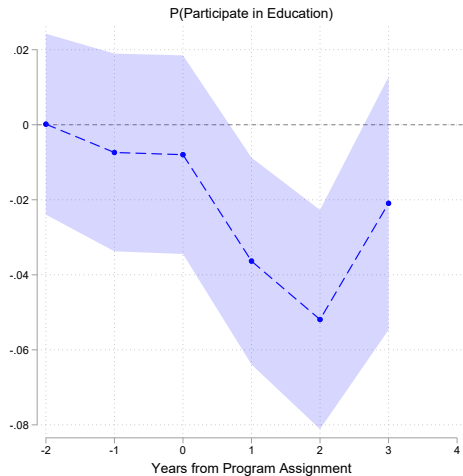
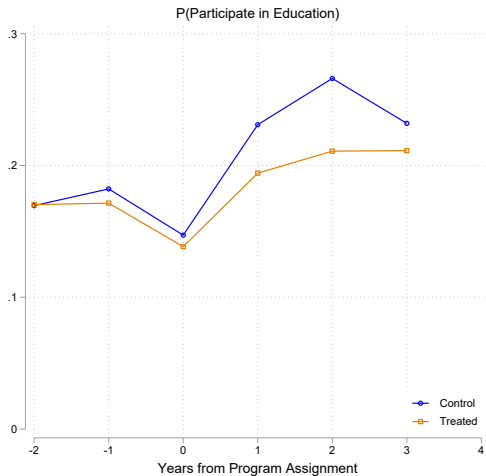
	(1) Pooled	(2) Pooled	By Region	
			(3) Uusimaa	(4) Rest-of-Finland
<b>Panel A: Earnings</b>				
Treated	6489.3** (3089.3)	5355.0** (2104.8)	4615.2*** (1321.3)	5355.0** (2162.9)
Treated X Intensity	-559.6 (959.8)			
Treated X Uusimaa		-739.9 (2487.2)		
Outcome mean	29180	29193	29583	27286
N	3,645	3,640	3,022	618
<b>Panel B: Months of Employment</b>				
Treated	2.578* (1.416)	2.437** (1.062)	1.640*** (0.500)	2.437** (1.091)
Treated X Intensity	-0.276 (0.425)			
Treated X Uusimaa		-0.798 (1.174)		
Outcome mean	15.063	15.069	15.107	14.880
N	3,645	3,640	3,022	618



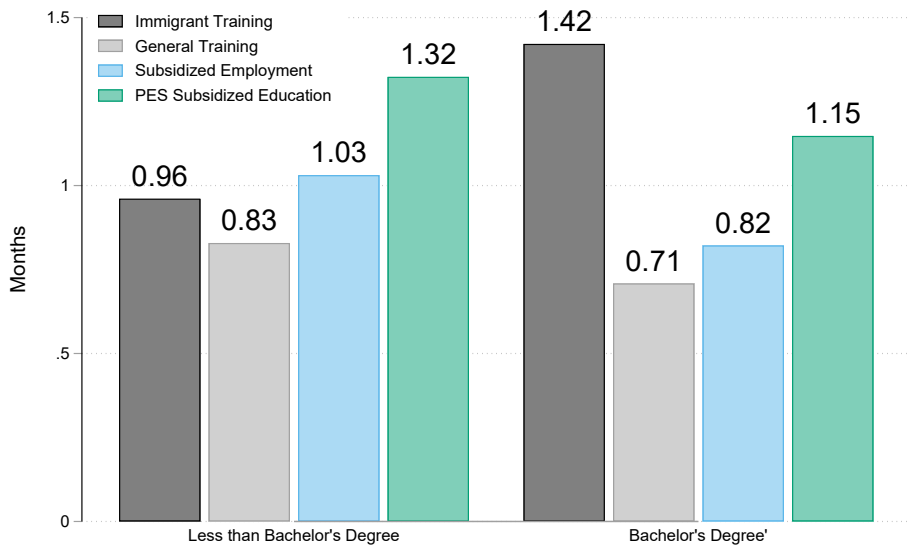
# PES Services in the Control Group [back](#)



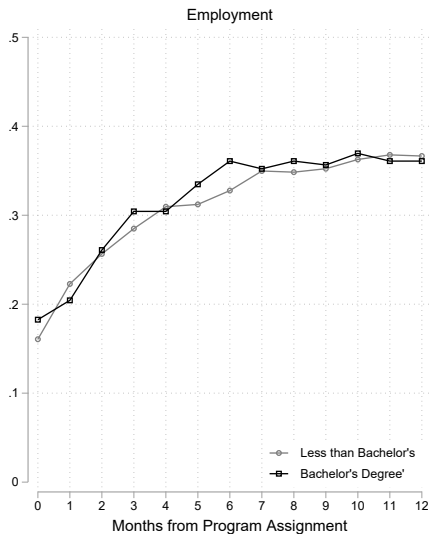
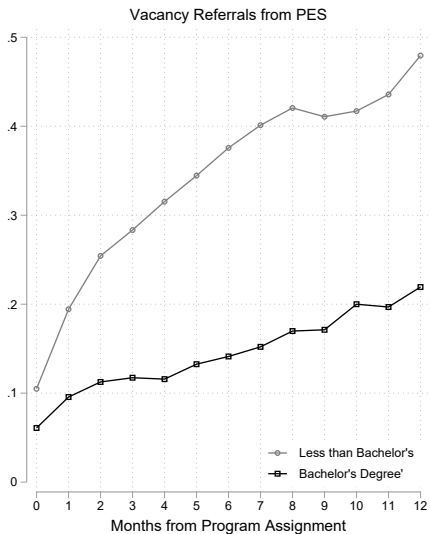
# Participation in Secondary Education Drops [back](#)



## PES Services in the Control Group [back](#)



# High-Skilled Job Seekers Get Less Referrals in the Control Group [back](#)



## Occupational Placement vs Vacancy Referrals in First 6 Months [back](#)

	(1) Managers and Professionals	(2) Clerical and Service	(3) Manual and Elementary	(4) Total
<b>Panel A: All participants</b>				
Share of Jobs (Control)	0,14	0,27	0,58	1,00
Share of Referrals	0,05	0,30	0,65	1,00
<b>Panel B: Low-skilled</b>				
Share of jobs	0,08	0,28	0,64	1,00
Share of Referrals	0,03	0,31	0,66	1,00
<b>Panel C: High-skilled</b>				
Share of jobs	0,35	0,30	0,35	1,00
Share of Referrals	0,29	0,19	0,52	1,00